Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. (Currently Amended) A method for detecting a dye bolus injected into the body of a living being, comprising the steps of:

injecting a non-specific fluorescent dye bolus into the body, the dye bolus having a transit time;

irradiating an optical excitation radiation into a predetermined region of the body the excitation radiation being chosen so as to excite a fluorescence radiation of the non-specific fluorescent dye; and

detecting the fluorescence radiation occurring on ~~the~~ a surface of the body, wherein the detecting step is performed for a time of at least some seconds;

~~wherein~~

measuring ~~the~~ time between the irradiation of the optical excitation radiation and the occurrence of the fluorescence radiation caused by the excitation radiation ~~is measured so as to determine the~~ thereby determining a flight time of fluorescent photons through a tissue between a location of the dye bolus and the surface of the body,

and ~~wherein~~ at multiple times during the transit time of the dye bolus, determining the flight time ~~is determined~~ during ~~the~~ transit of the dye bolus through the tissue ~~so as to obtain~~ and thereby constructing a profile of the photon flight time over the transit time of the dye bolus, the profile being used to evaluate the tissue, the profile including at least some seconds of detection of the dye bolus.

2. (Previously presented) The method as claimed in claim 1, wherein the excitation radiation is emitted as a short pulse with a pulse width in the picosecond range.

3. (Previously presented) The method as claimed in claim 2 wherein the time course of the fluorescence radiation is determined with nanosecond or picosecond time resolution.

4. (Previously presented) The method as claimed in claim 1, wherein the frequency of the excitation radiation is blocked off by filtering for the detection of the fluorescence radiation.

5. (Currently Amended) ~~The~~ A method ~~as claimed in claim 1~~ for detecting a dye bolus injected into the body of a living being, comprising the steps of:

injecting a non-specific fluorescent dye bolus into the body, the dye bolus having a transit time;

irradiating an optical excitation radiation into a predetermined region of the body the excitation radiation being chosen so as to excite a fluorescence radiation of the non-specific fluorescent dye;

detecting the fluorescence radiation occurring on a surface of the body, wherein the detecting step is performed for a time of at least some seconds;

~~wherein~~ simultaneously and in parallel to the detection of the fluorescence radiation, detecting the excitation radiation diffusely reflected from the body ~~is detected~~;

measuring time between the irradiation of the optical excitation radiation and the occurrence of the fluorescence radiation caused by the excitation radiation thereby determining a flight time of fluorescent photons through a tissue between a location of the dye bolus and the surface of the body,

and at multiple at multiple times during the transit time of the dye bolus, determining the flight time during transit of the dye bolus through the tissue and thereby constructing a profile of the photon flight time over the transit time of the dye bolus, the profile being used to evaluate the tissue, the profile including at least some seconds of detection of the dye bolus.

6. (Previously presented) The method as claimed in claim 1 wherein the detection of the reflected excitation radiation is likewise carried out with time resolution.

7. (Previously presented) The method as claimed in claim 1, wherein the detected fluorescence radiation is evaluated by assessing the distribution of the measured time of flight of photons.

8. (Previously presented) The method as claimed in claim 7 wherein an increase of the mean flight time of the fluorescent light is used as an indicator for the start of the detected dye bolus.

9. (Currently Amended) The method as claimed in claim 1, including irradiating a ~~wherein~~

~~the~~ region ~~irradiated~~ by said excitation radiation ~~is~~ at the head ~~in order to examine~~ and examining the brain.

10. (Currently Amended) The method as claimed in claim 1, including irradiating a lungs area ~~wherein the region irradiated~~ by said excitation radiation ~~is the area of the lungs~~.

11. (Currently Amended) A device for detecting a fluorescent dye bolus injected into the body of a living being, comprising:

an optical radiation source (1) for irradiating an excitation radiation into the body (4), said excitation radiation being chosen so as to excite a fluorescence radiation of the fluorescent dye;

a detection arrangement for detecting a fluorescence radiation of the fluorescent dye; ~~and~~

a measurement device for detecting a time difference between a time of irradiation of said excitation radiation and a time of detection of said fluorescence radiation;

a computer that receives multiple fluorescence measurements made by the detection arrangement over a time period of at least some seconds.

12. (Previously presented) The device as claimed in claim 11, wherein the optical radiation source emits excitation pulses with the pulse within the picosecond range.

13. (Previously presented) The device as claimed in claim 11, wherein the detection arrangement (6-14) is designed to detect the time course of fluorescence radiation with nanosecond or picosecond time resolution.

14. (Previously presented) The device as claimed in claim 11, wherein the detection arrangement comprises an optical filter for blocking off the excitation radiation.

15. (Previously presented) The device as claimed in claim 11, wherein the detection arrangement comprises an additional detector branch for detection of excitation radiation diffusely reflected by the body in said region.

16. (Canceled).

17. (Currently Amended) Method for detecting a dye bolus within the body of a living being, comprising the steps of:

injecting a fluorescent dye bolus into the body, the dye bolus having a transit time;

irradiating an optical excitation radiation into a predetermined region of the body, the excitation radiation being chosen so as to excite a fluorescence radiation of the fluorescent dye;

detecting the fluorescence radiation on ~~the~~ a surface of the body, wherein a high frequency modulated light is used as the excitation radiation and the modulation depth and the phase of the fluorescence radiation are determined in order to determine the flight time of fluorescence photons, wherein the detecting step is performed for a time of at least some seconds;

and ~~wherein~~ at multiple times during the transit time of the dye bolus, determining the flight time ~~is determined~~ during the transit of the dye bolus through the tissue ~~so as to obtain~~ and thereby constructing a profile of the photon flight time over the transit time of the dye bolus, the profile being used to evaluate the tissue, the profile including at least some seconds of detection of the dye bolus.

18. (New) The method of claim 1, including constructing a profile in a form of a graph that shows two plots as a function of time, including a plot for fluorescence and a plot for reflection, wherein the graph is for about 240 seconds wherein an injection time of the bolus occurs between 0 and 60 seconds.

19. (New) The method of claim 1, wherein constructing the profile includes constructing a profile in which the fluorescence photons behave very differently than the reflected light during transit of the dye bolus.

20. (New) A method for detecting a dye bolus injected into the body of a living being, comprising the steps of:

injecting a non-specific fluorescent dye bolus into the body;

irradiating an optical excitation radiation into a predetermined region of the body the excitation radiation being chosen so as to excite a fluorescence radiation of the non-specific fluorescent dye;

detecting the fluorescence radiation occurring on a surface of the body, wherein the

detecting step is performed for a time of at least some seconds;

simultaneously and in parallel to the step of detecting the fluorescence radiation, also detecting excitation radiation diffusely reflected from the body;

receiving results of the fluorescence detecting and the reflection detecting in a computer, and constructing a profile in which is plotted, against time, two curves including a fluorescence curve and a separate reflectance curve.

21. (New) The device of claim 11, including no more than two detectors including the fluorescence detection arrangement and the reflectance detector.

22. (New) The method as claimed in claim 17, wherein simultaneously and in parallel to the detection of the fluorescence radiation the excitation radiation diffusely reflected from the body is detected.

23. (New) The device of claim 11, further including a detector that carries out reflection measurement, and wherein the computer also receives multiple reflection measurements made by the detector over the time period.